

REMARKS

The Office Action mailed August 3, 2006 has been carefully reviewed and the following remarks have been made in consequence thereof.

Claims 1-32 are now pending in this application. Claims 1-21 are allowed. Claims 22, 23, 28, and 29 are rejected. Claims 24-27 and 30-32 are objected to. Claim 22 is amended. No new matter has been added.

The rejection of Claims 22 and 29 under 35 U.S.C. § 102(b) as being anticipated by Meno (U.S. Patent 4,716,904) ("Meno") is respectfully traversed.

Meno describes a ventriculography procedure including a method for distinguishing between a motion resulting from contraction of the heart and motion resulting from actual back and forth displacement or physical movement of the heart within in the chest cavity. The images of the heart are detected by image detectors or detection means (10). Based on pulsed fluoroscopy, the method includes subtracting any two successive digitized video images in real time.

The "difference images" or $I_n - I_{n-1}$ between two successive "snapshot[s]" of digitized video images contain only those aspects of the image that have changed, that is, registering only an amount of contraction and motion. In a difference image, contraction or expansion of the heart is registered by gray scale deviations in a same direction. However, in a difference image, motion is registered by gray scale deviations in opposite directions. Notably, Meno does not describe or suggest obtaining the two successive images using a scout scan. Moreover, Meno does not describe or suggest that the two successive images are obtained at a same physical location in a single pass of a single scout scan.

Claim 22 recites a method for facilitating calcification scoring, the method including "imaging a heart at a first phase of a cardiac cycle to obtain a first scout image; imaging the heart at a second phase of the cardiac cycle to obtain a second scout image, wherein the second phase is different from the first phase, and wherein the first and second images are obtained at the same physical location in a single pass of a single scout scan; and determining a difference image using the first and second images."

Meno does not describe or suggest a method for facilitating calcification scoring as recited in Claim 22. More specifically, Meno does not describe or suggest obtaining first and second image at the same physical location in a single pass of a single scout scan. Rather, Meno describes generating a difference image or $I_n - I_{n-1}$ that contains only those aspects that have changed between two successive “snapshot[s]” of digitized video images. Accordingly, for at least the reasons set forth above, Claim 22 is submitted to be patentable over Meno.

Claim 29 depends directly from independent Claim 22. When the recitations of Claim 29 are considered in combination with the recitations of Claim 22, Applicants submit that dependent Claim 29 likewise is patentable over Meno.

For at least the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claims 22 and 29 be withdrawn.

The rejection of Claims 22 and 29 under 35 U.S.C. § 102(b) as being anticipated by Haendle et al. (U.S. Patent 4,433,428) (“Haendle”) is respectfully traversed.

Haendle et al. describes a diagnostic method for detecting moved organs. In the method, where there are n pixels in an image, a digital image stored by an image memory (7) during an image interval following a R-wave signal from a control (17), may be represented as R_n . At a time of a supply of a delayed T-wave signal from the control (17), a digital video signal is supplied by a converter (6), which may be represented as T_n . The stored image R_n may be supplied from the image memory (7) pixel by pixel to a subtractor (8) during each video image cycle, for example, so that at the occurrence of the T-wave signal from the control (17), a difference signal will be supplied from the subtractor (8) and stored in a second image memory (11).

The method includes triggering an image storage operation at selected different times of a heart cycle. As such, two x-ray images pertaining to different heart phases are thereby retained in the second memory (11) so that one can recognize a movement of an organ from a subtraction image. Notably, Haendle does not describe or suggest obtaining the two x-ray images using a scout scan. Moreover,

Haendle does not describe or suggest that the two x-ray images are obtained at a same physical location in a single pass of a single scout scan.

Claim 22 recites a method for facilitating calcification scoring, the method including “imaging a heart at a first phase of a cardiac cycle to obtain a first scout image; imaging the heart at a second phase of the cardiac cycle to obtain a second scout image, wherein the second phase is different from the first phase, and wherein the first and second images are obtained at the same physical location in a single pass of a single scout scan; and determining a difference image using the first and second images.”

Haendle does not describe or suggest a method for facilitating calcification scoring as recited in Claim 22. Specifically, Haendle does not describe or suggest obtaining first and second image at the same physical location in a single pass of a single scout scan. Rather, Haendle describes a method including using two x-ray images pertaining to different heart phases for supplying a difference signal to a memory for storage at selected different times of a heart cycle. Accordingly, for at least the reasons set forth above, Claim 22 is submitted to be patentable over Haendle.

Claim 29 depends directly from independent Claim 22. When the recitations of Claim 29 are considered in combination with the recitations of Claim 22, Applicants submit that dependent Claim 29 likewise is patentable over Haendle et al.

For at least the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claims 22 and 29 be withdrawn.

The rejection of Claims 23 and 28 under 35 U.S.C. § 103(a) as being unpatentable over Haendle is respectfully traversed.

Haendle et al. is described above.

Applicants respectfully submit that the Section 103 rejection of the presently pending claims is not a proper rejection. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. Haendle does not describe or suggest the claimed combination. Furthermore, in

contrast to the assertion within the Office Action, Applicants respectfully submit that it would not be obvious to one skilled in the art to modify Haendle, because there is no motivation to modify Haendle as suggested in the Office Action. Additionally, the Examiner has not pointed to any prior art that teaches or suggests to modify Haendle, other than Applicants' own teaching.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levengood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicants' disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicant's disclosure. In re Vaeck , 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion or motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown.

Furthermore, it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the cited art so that the claimed invention is rendered obvious. Specifically, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the art to deprecate the claimed invention. Further, it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. The present Section 103 rejection is based on a combination of teachings selected in an attempt to arrive at the claimed invention. Since there is no teaching nor suggestion in the cited art for the combination, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for this reason alone, Applicants request that the Section 103 rejection be withdrawn.

Moreover, and to the extent understood, Haendle does not describe or suggest the claimed invention. Specifically, Claim 22 recites a method for facilitating calcification scoring, the method including "imaging a heart at a first phase of a cardiac cycle to obtain a first scout image; imaging the heart at a second phase of the

cardiac cycle to obtain a second scout image, wherein the second phase is different from the first phase, and wherein the first and second images are obtained at a same physical location in a single pass of a single scout scan; and determining a difference image using the first and second images.”

Haendle does not describe or suggest a method for facilitating calcification scoring as recited in Claim 22. Specifically, Haendle does not describe or suggest obtaining first and second image at the same physical location in a single pass of a single scout scan. Rather, Haendle describes a method including using two x-ray images pertaining to different heart phases for supplying a difference signal to a memory for storage at selected different times of a heart cycle. Accordingly, for at least the reasons set forth above, Claim 22 is submitted to be patentable over Haendle.

Claims 23 and 28 depend directly from independent Claim 22. When the recitations of Claims 23 and 28 are considered in combination with the recitations of Claim 22, Applicants submit that dependent Claims 23 and 28 likewise are patentable over Haendle et al.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 23 and 28 be withdrawn.

The objection to Claims 24-27 and 30-32 is respectfully traversed, claims 24-27 and 30-32 are indicated as being allowable if amended to incorporate the recitations of the base claim and any intervening claims.

Claims 24-27 and 30-32 depend, directly and indirectly, from independent Claim 22. When the recitations of Claims 24-27 and 30-32 are considered in combination with the recitations of Claim 22, Applicants submit that dependent Claims 24-27 and 30-32, for at least this reason, are likewise in condition for allowance.

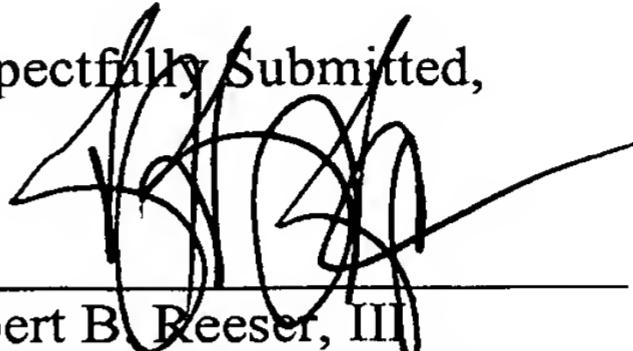
Applicants respectfully disagree with a first statement of reasons for allowance on page 5 of the Office Action. The first statement states, “The prior art of record neither teaches nor reasonably suggests a CT imaging...where a difference image is determined from two scout scans of a heart taken at two different phases, as required by the combination as claimed in each of claims 1 and 12.” Applicants respectfully

submit that Claims 1 and 12 do not include, “two scout scans of a heart”, as stated in the first statement. Rather, Claim 1 includes, “acquiring data representative of a first scout-scanned CT image of physical locations of the patient’s body including at least a portion of the patient’s heart at phases $\phi_1(L)$ of the cardiac cycle; acquiring data representative of a second scout-scanned CT image of the physical locations of the patient’s body including at least a portion of the patient’s heart at phases $\phi_2(L)$ of the cardiac cycle different from $\phi_1(L)$; and determining a difference image from the acquired data representative of the first scout-scanned CT image and the acquired data representative of the second scout-scanned CT image data”. Moreover, Claim 12 includes, “acquire data representative of a first scout-scanned CT image of physical locations of the patient’s body including at least a portion of the patient’s heart at phases $\phi_1(L)$ of the cardiac cycle; acquire data representative of a second scout-scanned CT image of the physical locations of the patient’s body including at least a portion of the patient’s heart at phases $\phi_2(L)$ of the cardiac cycle different from $\phi_1(L)$; and determine a difference image from the acquired data representative of the first scout-scanned CT image and the acquired data representative of the second scout-scanned CT image data.”

Applicant respectfully disagrees with a second statement of reasons for allowance on page 5 of the Office Action. The second statement states, “The prior art of record neither teaches nor reasonably suggests the additional method step of taking the first and second images using different rows of the detector in one pass of the patient table, as required by the combination as claimed in claim 30.” Applicant respectfully submits that Claim 30 does not include, “in one pass of the patient table”, as stated in the second statement. Rather, Claim 30 includes, “A method in accordance with Claim 22 wherein imaging a heart to obtain a first image and imaging a heart to obtain a second image are performed by utilizing different detector rows of an imaging system”.

In view of the foregoing amendment and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



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